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09/438,184	11/11/1999	RON MCCABE	1735.2.2	8995
7590 12/03/2004 Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Street Portland, OR 97205			EXAMINER DINH, DUNG C	
			ART UNIT	PAPER NUMBER
			2152	
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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/438,184
Filing Date: November 11, 1999
Appellant(s): MCCABE ET AL.

MAILED
DEC 01 2004
Technology Center 2100

Scott A. Schaffer
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/8/2004.

(1) *Real Party in Interest*

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A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 6 (group I) and 27-45 (group II) do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

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The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5537533 Staheli et al. 7-1996

"Double-Take; Meeting the New Requirement for Enterprise Data Protection", NSI Software, 1997, pp.1-16.

"FrameRunner", StorageTek, March 16, 1999, pp.1-5.

(10) Grounds of Rejection

Claims 6 and 27-45 are rejected under 35 U.S.C. 103 as unpatentable over Staheli et al. US patent 5,537,533 and further in view of Double-Take, and FrameRunner.

As per claims 6, Staheli teaches a data mirroring system with data transfer to remote storage location via a journey line [col.12 lines 49-63], non-invasive characteristic by which data is mirrored through a local mirror unit toward the remote location [col.14 lines 36-53] without requiring on the host any software that is designed specifically for remote data mirroring [see col.10 lines 22-36]; and disk emulation characteristic by which the system mirrors data through a standard storage subsystem bus [See col.10 lines 22-40].

Staheli does not specifically disclose multiplicity characteristic, serverless destination characteristic where the remote mirroring unit is not attached to a remote server, and

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using TCP protocol over the journey line to the remote mirroring unit.

FrameRunner teaches an improved data mirroring system by using serverless destination where the remote mirroring unit is not connected to a dedicated server. Mirrored data is send directly between storage units without the host involvement. This improvement allows any type of computer system to have mirroring capability with minimal impact to the overall system performance. (See the last paragraph on page 2 - "No Host Intervention").

Double-take teaches an improved data mirroring system by having wide area network journey line to connect to remote mirroring unit (p.7 Affordable - "Double-Take runs over existing network links", p.9 Tolerant - "wide area connections ..."). It is apparent that the local unit would act as a client to send data for storage, and the remote unit would act as a server to accept the data for storage. Double-Take does not specifically disclose usage of TCP/IP. However, it is well known in the art at the time of the invention to use TCP/IP over wide area network. It is apparent that the wide area network of Double-Take used TCP/IP. It would have been obvious for one of ordinary skill in the art to use TCP/IP because it would have enabled the system to mirror data over existing wide are network

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such as the Internet. Double-Take further teaches the improvement including multiplicity characteristic in which the system provides many-to-one and one-to-many mirroring (see page 7 "Flexible" and page 13).

Hence, one of ordinary skill in the art would have been motivated to combine the teaching of FrameRunner and Double-Take to Staheli and to use TCP journey line because it would have improved flexibility and enabled the system to mirror data over existing wide area network (such as the Internet).

As per claim 27, it is rejected under the same rationale as stated for claim 6 above. Staheli system as modified includes plurality of primary servers and associated local mirroring unit [See Staheli col.14 lines 54-57 "additional servers may be employed"]. Staheli teaches the local mirroring unit generating spoof packet [col.13 lines 19-25] and has a nonvolatile data buffer 66 for mirrored data [col.13 lines 35-40], the local link include standard storage subsystem bus [inherent that Staheli's host would have an I/O subsystem bus] and the local mirroring unit emulating a disk subsystem in communication over the storage subsystem bus [see col.10 lines 22-40], and a destination including a remote mirroring unit having a destination nonvolatile storage for mirrored data received over

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journey links [col.14 lines 44-54]. Double-Take and FrameRunner also teaches providing journey links to remote mirror destination [see FrameRunner page 2].

As per claims 28-29, 31 and 34, Double-Take teaches many-to-one mirroring configuration [page 13]. The reference does not specifically disclose providing at the destination a partition or a hard drive for each primary server. It would have been obvious for one of ordinary skill in the art to do so because it would have physically separate data mirrored from each of the primary servers. The usage of a partition, disk, or RAID as storage unit clearly would have been a matter of design choice depending upon the amount of storage capacity needed. It would have been obvious for one of ordinary skill in the art to have provided storage capacity sufficiently large in order to hold the data of each server to be mirrored.

As per claims 30, Staheli teaches the mirrored drive is bootable [see fig.2].

As per claim 32, official notice is taken that it is well known in the art to have RAID that is hot-swappable and hardware/software for striping. It would have been obvious to use such storage device because it would have enabled efficient large storage and high failure tolerant.

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As per claim 33, it is apparent that the system as modified comprises plural primary servers with different operating system [see FrameRunner bottom of page 2 - UNIX, Windows NT, AS/400s].

As per claims 35-37, official notice is taken that it is well known in the art to use SCSI, fibre channel, and USB for storage subsystem (see applicant admitted prior art on p.9). The type of bus used would clearly have been a matter of design choice.

As per claims 38-39, official notice is taken that Ethernet and TCP connection are well known network protocols. The usage of either would have been a matter of design choice. It would have been obvious to one of ordinary skill in the art to use any of these two protocols because they are widely available.

As per claims 42-45, it is apparent that the remote mirror units and primary servers of the Staheli's system as modified can be ten or hundred of miles from each others (e.g. over wide area network, the Internet).

(11) Response to Argument

Applicant argued that the Examiner has used improper hindsight in combining the references because the motivation statement in the rejection is similar to the field of invention in the application. The argument is not persuasive because the

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obviousness motivation is taken from the references. The stated motivation happened to be similar to Applicant's field of invention because the references are in fact directed to the similar field of invention.

FrameRunner specifically discloses it reduces recovery time, works in conjunction with various existing remote mirroring facilities and various other advantages. FrameRunner is configurable to work over various remote channels [see page 2 MİRRORED DATA]. Hence, FrameRunner clearly provides mirror flexibilities.

Double-Take similarly is directed at remote mirroring which provides more flexibilities than tradition technology [see page 5, specifically item 4 - "Flexible" in the "Key Consideration"].

Applicant also argued that the references can not be combined because they include mutually exclusive features and incompatibilities. The argument is not persuasive because the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references.

Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in

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the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Here, claim 6 recites in broad language various desired characteristics of a mirroring system. These characteristics are clearly known prior to the present invention as demonstrated by the references. All five of the claimed characteristics are taught by the combination of the references:

1. serverless - FrameRunner's No Host Intervention [page 2]. FrameRunner specifically discloses the disk systems can communicate directly with each other. Hence, the mirror system does not require a server to direct the disk system, e.g. the system is serverless.

2. non-invasive - Staheli make use of existing Operating System functions. Staheli does not require installing specially designed software for remote mirroring. Hence, Staheli's system is 'non-invasive' as claimed. [Staheli col.10 lines 22-40].

3. disk emulation by the local mirror unit - Staheli specifically discloses this characteristic. See col.10 lines 22-40.

4. TCP Journey line - Staheli specifically disclose usage of a journey line to remote site. See col.12 lines 49-63.

Double-Take also specifically disclose usage of a journey line

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(offsite link). FrameRunner also teaches journey line over various physical medium (see page 2 "MIRRORED DATA"). The references do not specifically mention TCP protocol. However, it is apparent that the wide-area-network disclosed in Double-Take would use TCP. It is well known in the art to use TCP/IP over wide area network. The usage of TCP would have been obvious at the time of the invention so that one can take advantage of the power and interconnectivity of the Internet.

5. Multiplicity characteristic - Double-Take clearly teaches multiplicity - many-to-one and one-to-many mirroring. (See page 7 "Flexible" key consideration).

As per claim 27, Applicant argued that Staheli does not teach more than one primary network server. Applicant argues that Staheli col.14 lines 54-62 discloses additional servers that are mirror servers to the one primary server, not additional primary servers. The argument is not persuasive because Staheli stated 'additional servers' without clarifying what type of server. Even if col.14 lines 54-62 means only additional secondary servers, one of ordinary skill in the art would clearly understood Staheli's whole disclosure to be merely exemplary. There is nothing in Staheli teaching that would limit the number of primary server to just one. It would have

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been obvious for one of ordinary skill in the art to have as many primary servers as his business need required.

As per the limitation of the local mirror unit associated with the primary server, Staheli clearly teaches each primary server has a local mirror unit (the disk emulation & server interface 32 together with the local disk drive 68 - see col.14 lines 36-48).

As per the Spoof packet generator, this limitation is clearly taught by Staheli (see col.13 lines 19-25, col.14 lines 44-48).

As per the local bus limitation, clearly Staheli host must have an I/O bus in order to communication with the I/O device controller [see col.10 lines 22-29]. Col.10 lines 22-29 also clearly show that Staheli teaches communication to the disk emulator over the I/O bus.

Staheli, Double-Take, and FrameRunner are analogous arts and combined they clearly teach all the claimed limitations.

For the above reasons, it is believed that the rejections should be sustained.

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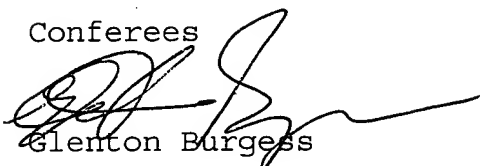
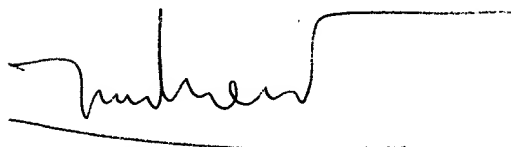
Respectfully submitted,



Dung Dinh
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November 8, 2004.

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